Agenda

✰ **Requirements**

✰ **Satellite Convergence & Army Transport Layer**

✰ **Future SATCOM Programs & Continuity of Services**

✰ **Challenges & Kudos**

✰ **Conclusions**

Warfighter SATCOM Requirements

Situational Awareness

Reach Back to DISN/GIG
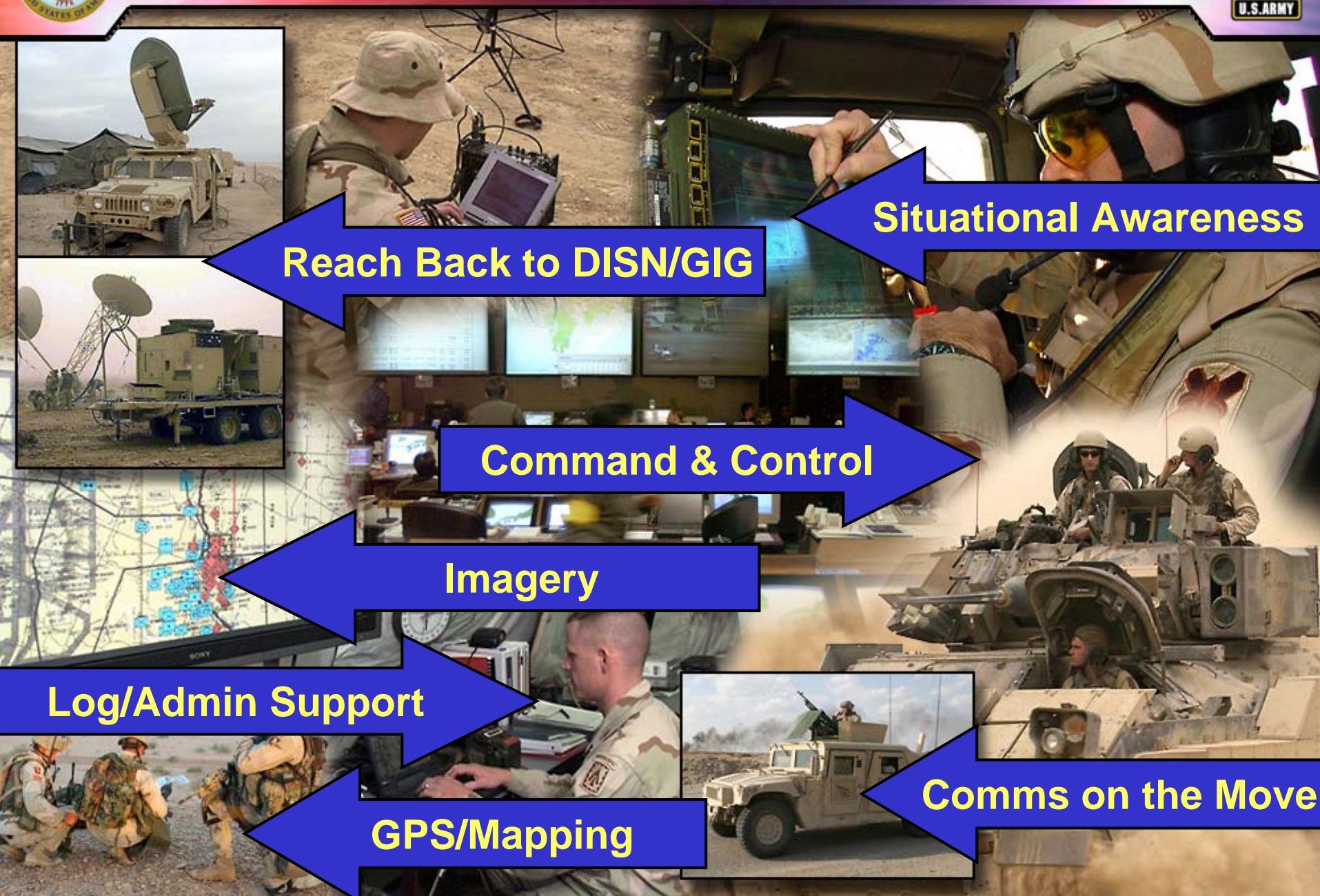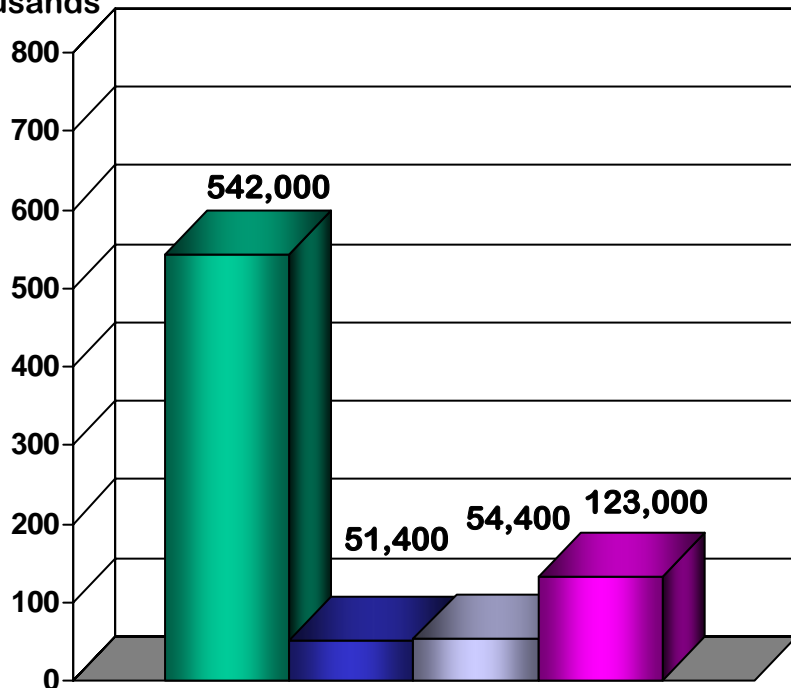
Command & Control

Imagery

Log/Admin Support

Comms on the Move

GPS/Mapping
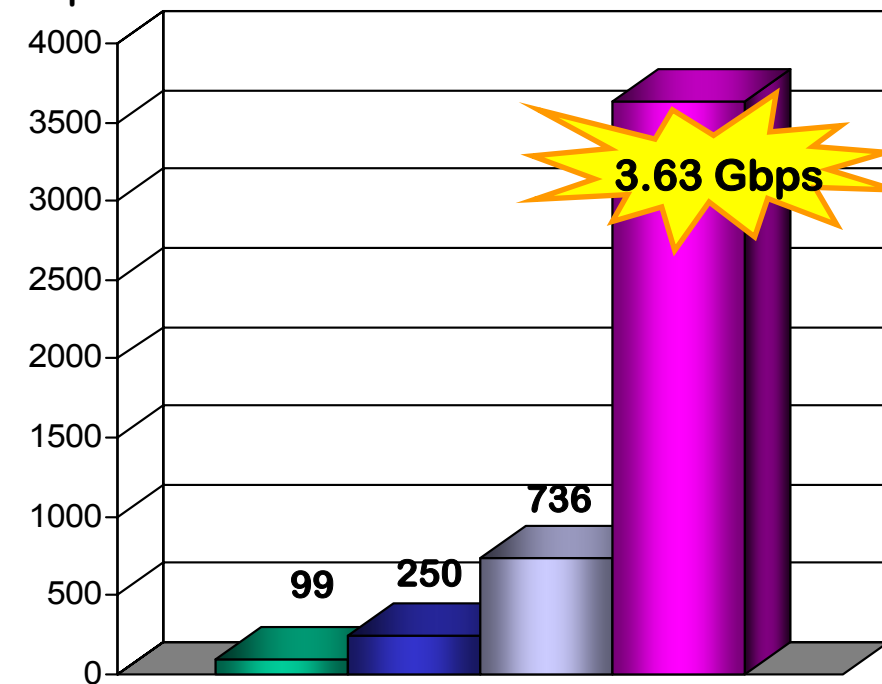
Brigade Combat Team In The Fight – 2004

- 80% Commercial
- 20% Military

UHF

SHF X Band

SHF
Ku/C Band

TROJAN SPIRIT II

JNN Hubs

GBS

TACSAT

AN/TSC-85/93
TRI-TAC

CSS
VSAT

TROJAN LITE

C2V (Swe-dish)

JNN

EHF
(Protected)

SMART-T
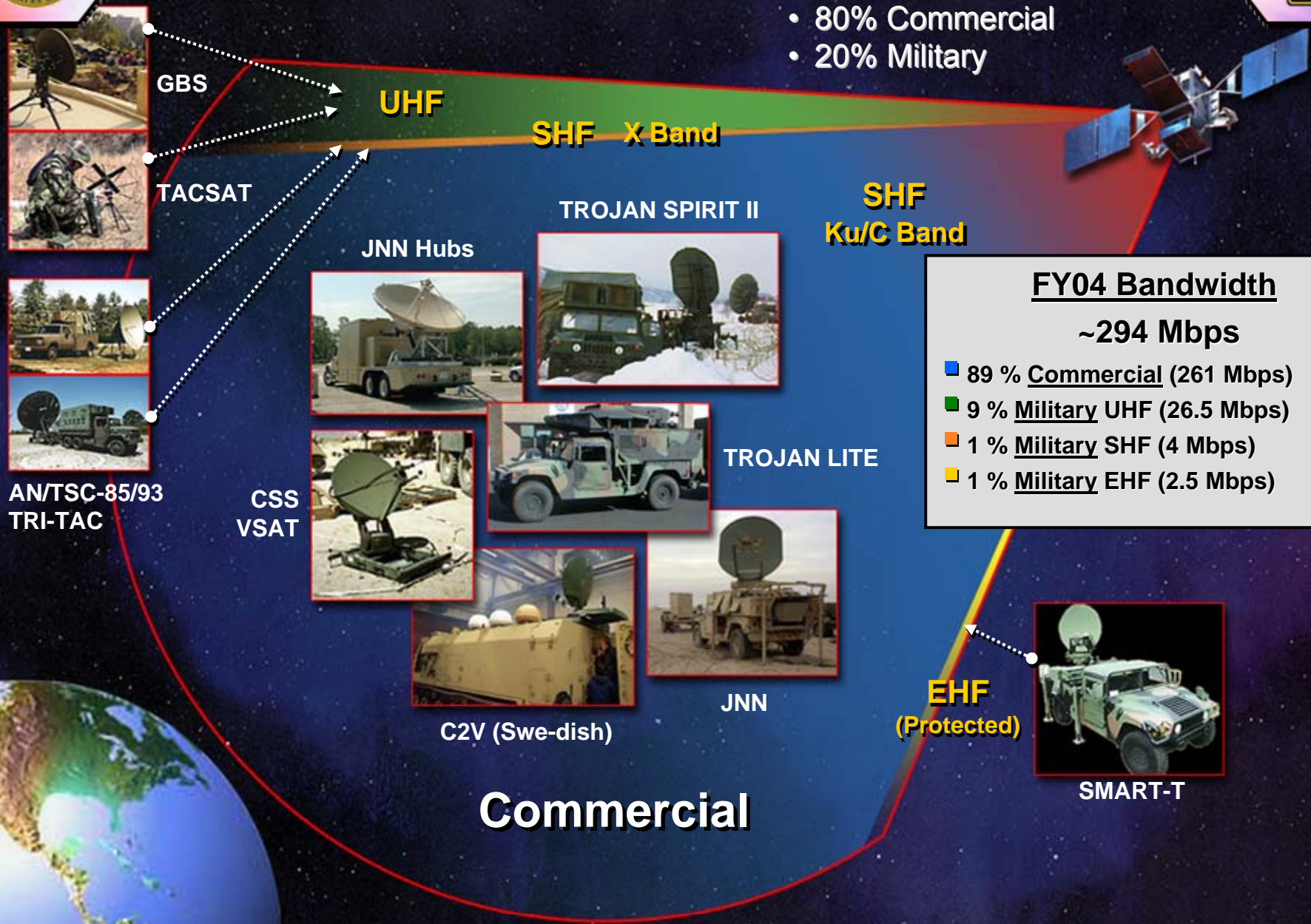
Commercial

FY04 Bandwidth

~294 Mbps

- 89 % Commercial (261 Mbps)
- 9 % Military UHF (26.5 Mbps)
- 1 % Military SHF (4 Mbps)
- 1 % Military EHF (2.5 Mbps)

U.S.ARMY

Brigade Combat Team In The Fight – 2014

U.S.ARMY

- 20% Commercial
- 80% Military

BFT/FBCB2

Commercial
(Ku/C/L Bands)

WIN-T

TSAT
(AEHF/Ka Band)

FCS Family

WGS
(SHF-X/Ka Band)

CSS VSAT

JNN

Phoenix

AEHF
(EHF Protected)

SMART-T

JNN Hubs

MUOS
(UHF)

TACSAT

GBS

FY14 Bandwidth
~1 Gbps

- 20% Commercial (200 Mbps)
- 25.5% Military TSAT (255 Mbps)
- 50% Military WGS (500 Mbps)
- 4% Military AEHF (40 Mbps)
- .5% Military MUOS (UHF) (5 Mbps)

Moving to "Everything Over IP (EoIP)"

- **FIRST … the Joint Special Operations Command - Fort Bragg**
- **THEN …. the Joint Communications Support Element - MacDill AFB**
  - **Iraq**
  - **Afghanistan**
- **JNN to WIN-T**

- **Everything over Internet Protocol**
  - **Scalable**
  - **Flexible**
  - **Efficient**
  - **Less cost, smaller footprint, less people**
  - **EoIP will converge & reduce training requirements**

Current Circuit Based & Telephony Capability

Everything Over IP (EOIP) Refit

Data

Voice

Secure Networks

Converged IP

Video Teleconferencing

Unclassified Networks

Moving to "Everything Over IP (EoIP)"

- **FIRST … the Joint Special Operations Command - Fort Bragg**
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Data

Voice

Secure Networks

Converged IP

Video Teleconferencing

Unclassified Networks

Airlift

JOINT COMMUNICATIONS SUPPORT ELEMENT
To address inefficiencies of traditional bandwidth allocations........migrate everything to EoIP

- DoD SATCOM Roadmap

- Warfighter Information Network – Tactical (WIN-T)

- High Capacity Communications Capability (HC3)

DoD MILSATCOM Roadmap

America's Army: The Strength of the Nation – Army Strong
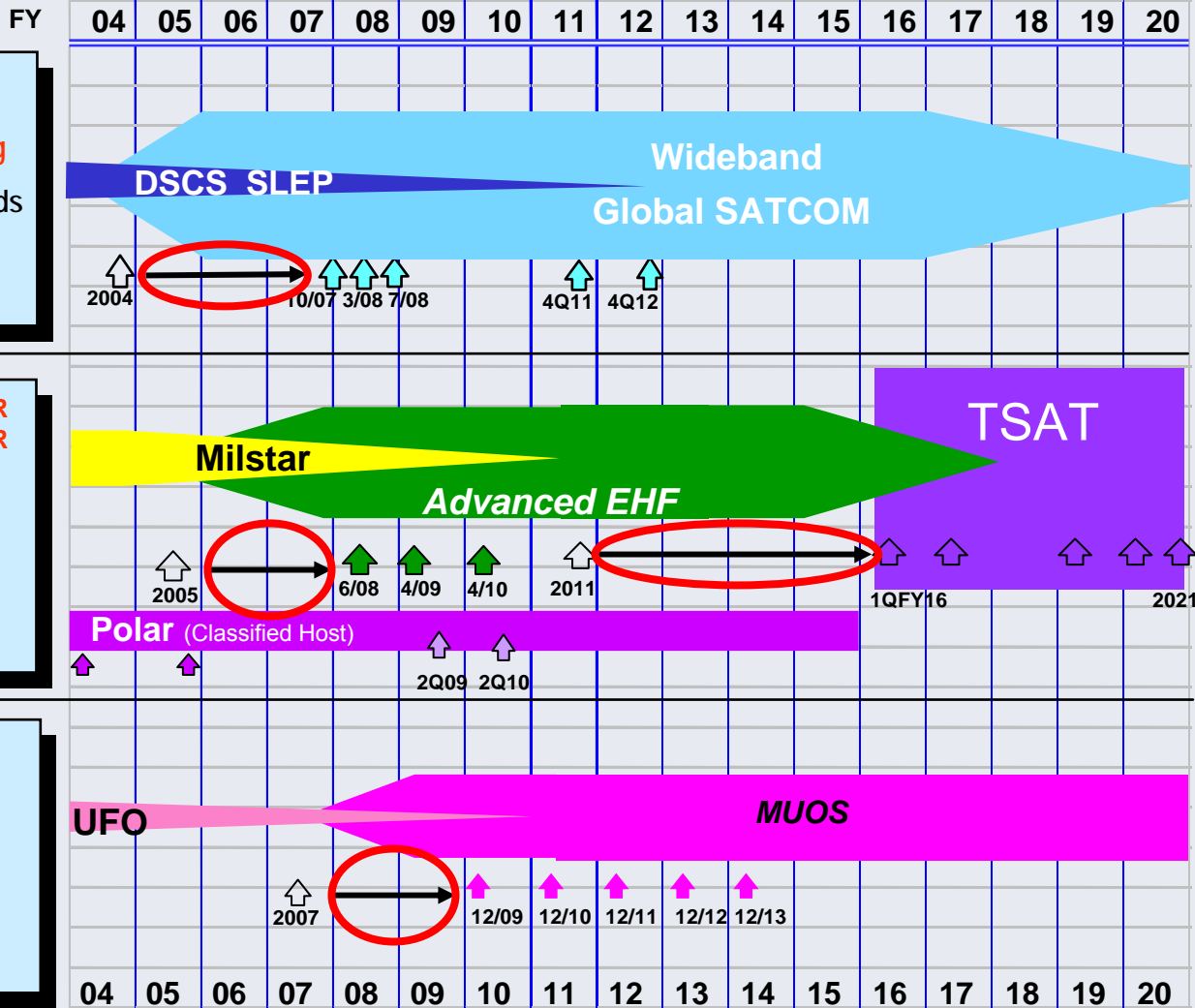
MISSION

| | **(FY07-08)** *Near Term)* | **(FY09-13)** *The POM Years* | **(FY14-22)** *The EPP Years* | **(FY22 – beyond)** *Beyond the EPP* |

INFO

GCCS-A

A2C2S

MCS/CPOF Co-host

NECC

MBCOTM

SICPS

Common Viewer

FBCB2/BFT

JCR   JBC-P   FCS

SPACE

SMART-T

TSAT   Protected

SMART-T AEHF

Phoenix

HC3 CATH

AN/TSC-85/93

GBS

HC3 OTM

WIN-T

WIN-T Incr 1 At the Halt (Formerly JNN)

WIN-T Incr 2 Initial On the Move

WIN-T Incr 3 On the Move

WIN-T Incr 4 On the Move With HC3 TSAT insertion

LOWER TIER

PLGR

DAGR   JTRS GMR

JTRS

AN/PRC-148

SINCGARS

JTRS HMS

AN/PSC-5 TACSAT
29 October 2007

AN/PRC-150 HF

America's Army: The Strength of the Nation – Army Strong

12

2004 - - - - - - - - - - - - ?

2014 - - - - - - - ?

Joint Network Node (JNN)

Future Combat Systems (FCS)

Net-Centric

Warfighter Information Network-Tactical (WIN-T)
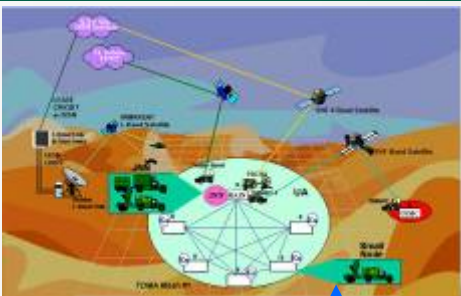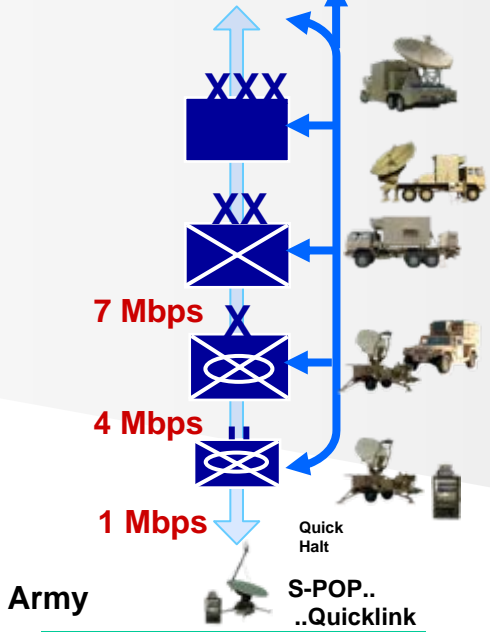
Program Restructuring

Increment 1:
Networking At-The-Halt
- 1a – Extended Networking-at-the-Halt
- 1b – Enhanced Networking-at-the-Halt

Increment 2:
Initial Networking On-the-Move

Increment 3:
Full Networking On-the-Move"

Increment 4:
Protected Satellite Communications On-the-Move"

XXX

XX

X

7 Mbps

4 Mbps

1 Mbps

Quick Halt

Army

S-POP.. ..Quicklink

XX   X

>24 Mbps   20 Mbps

XXX

4 Mbps (moving)

20 Mbps (halt)

On-The-Move

Convoys

Joint & Coalition

Modular Force

Future Force

Capabilities

- **Protected SATCOM capability**

- **High Bandwidth SATCOM capability**
  - Inc 1: Communications At-the-Halt (CATH)
  - Inc 2: Communications On-the-Move (COTM)

- **Only way Army gets TSAT capability for COTM**

Characteristics

- **Tactical Multi-Band & Multi-Mode**

- **Reduced Up-Armored Footprint**

- **Postured to develop Joint technologies for TSAT**

Roadmap

- **HC3 Analysis of Alternatives in-process**
- **Objective solution to replace legacy tactical terminals nearing EOL (FY14)**
- **Goal is to synchronize terminal fielding with TSAT**
- **HC3 will enhance WIN-T architecture for BLOS connectivity**

DoD Teleports

Extending Internet Protocol Power through Global Reach

Landstuhl/Ramstein

England

Germany

France

Korea

Japan

Okinowa

Guam

Camp Roberts

Hawaii

North West

Lago Di Patria

Ft. Buckner

Wahiawa

Six Teleport Locations Worldwide provide complete and redundant coverage of Combatant Commanders' Area of Responsibility

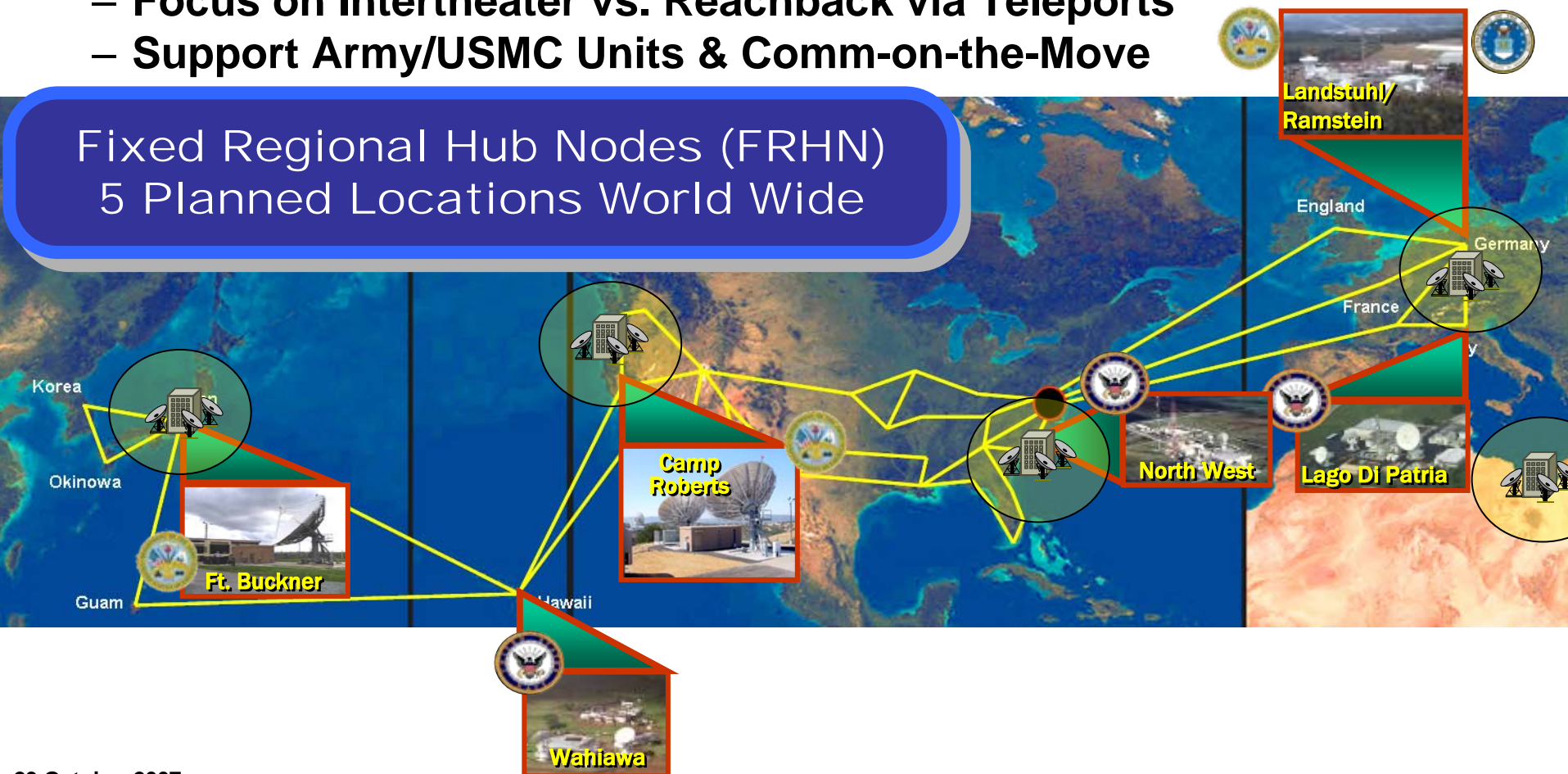**America's Army: The Strength of the Nation – Army Strong**

Fixed Regional Hub Nodes

> **Five locations to provide complete & overlapping coverage of Combatant Command Areas of Responsibility (AOR)**
>   – **All connected to the Global Information Grid (GIG)**
>   – **Focus on Intertheater vs. Reachback via Teleports**
>   – **Support Army/USMC Units & Comm-on-the-Move**

**Fixed Regional Hub Nodes (FRHN)
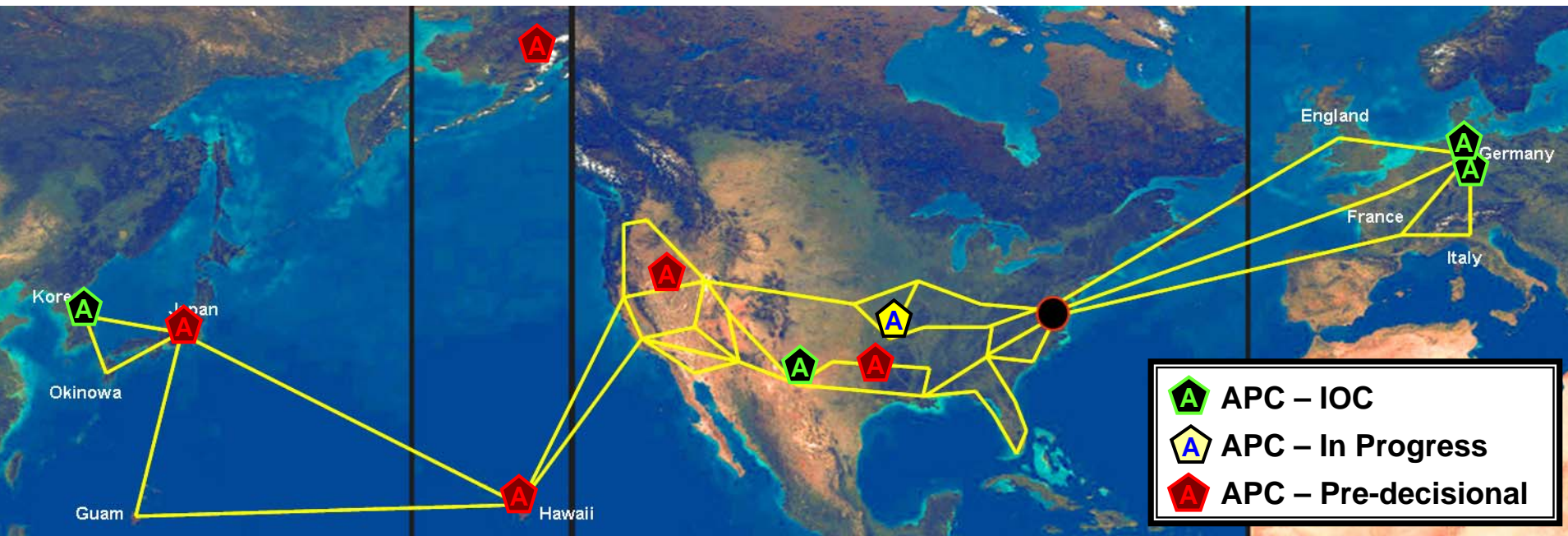5 Planned Locations World Wide**

Landstuhl/ Ramstein

England

Germany

France

Korea

Okinawa

Guam

Camp Roberts

North West

Lago Di Patria

Ft. Buckner

Hawaii

Wahiawa

➤ **The purpose of the APC initiative is to improve delivery services through:**
  – **Achieving Net-Centric Operations and Warfare Environment**
  – **Improving IA and Security Posture**
  – **Reducing Total Cost of Ownership (TCO) for Information Technology**
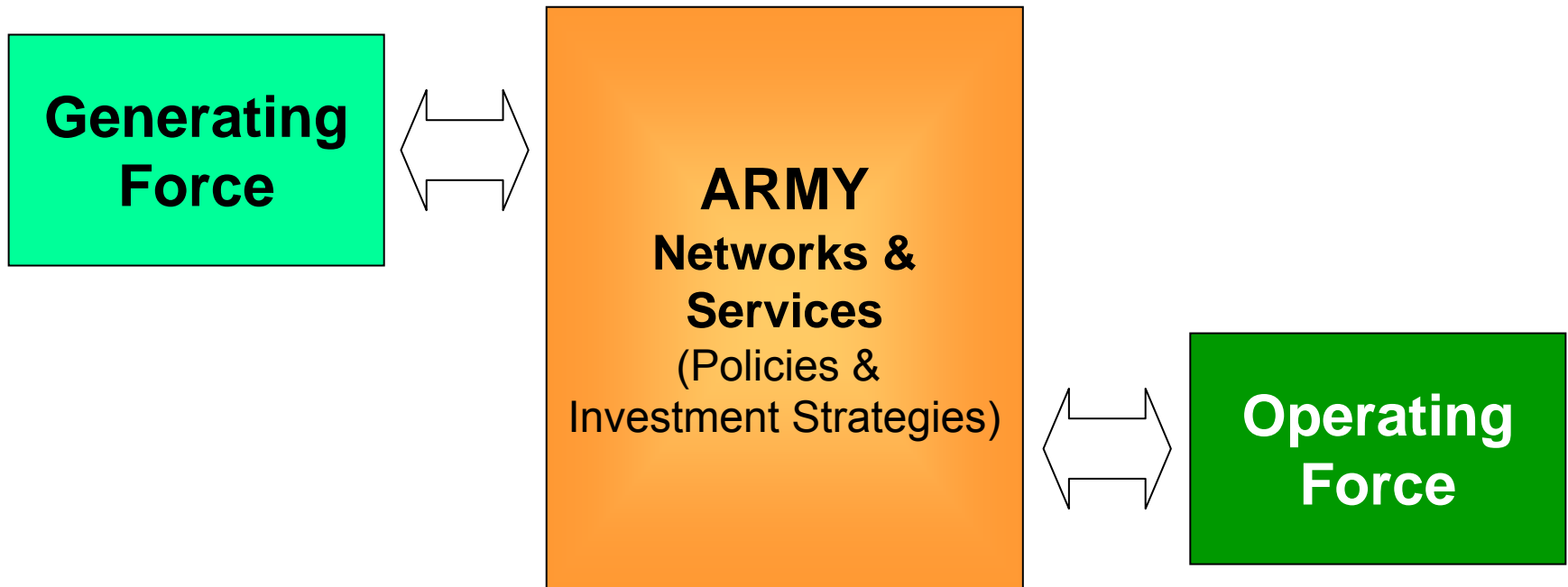

APC – IOC
APC – In Progress
APC – Pre-decisional

Fully integrated & synchronized programs that deliver required warfighting capabilities

Generating Force ⟷ ARMY Networks & Services (Policies & Investment Strategies) ⟷ Operating Force

- **Transport: Regional Hub Nodes (RHN)**
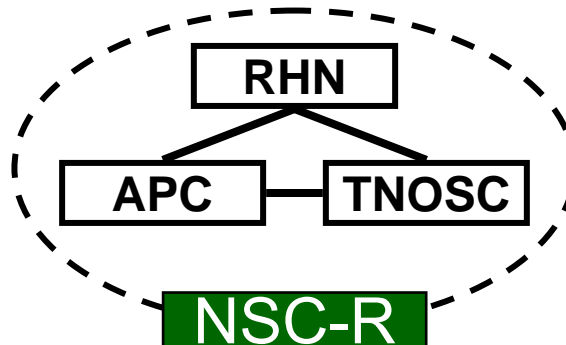 - ◆ **Positioned for global coverage—Europe, Southwest Asia, Pacific, CONUS-East, CONUS-West—plus a training hub at Ft Gordon**
  - ◆ **Supports up to three full division enclaves per hub node**
  - ◆ **Connect units to each other and to DISN services in garrison and deployed**

- **Information Services: Area Processing Centers (APC)**
  - ◆ **Consolidated IT services**
  - ◆ **Support projection and forward staging of user applications, information & services**

- **NetOps: Theater Network Operations & Security Centers (TNOSC)**
  - ◆ **Technical oversight of NSC-R component operation**
  - ◆ **Enterprise management, content management (staging and dissemination), network defense, spectrum management, help desk, applications**

```
                    ┌───────┐
                    │  RHN  │
                    └───────┘
                   ╱         ╲
           ┌───────┐     ┌────────┐
           │  APC  │─────│ TNOSC  │
           └───────┘     └────────┘

                    NSC-R
```
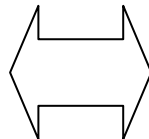
The "Always On" Network

# Network Service Center - Regional

Generating Force

Capabilities:
- I3MP
- NetOps
- KCs (AKO/DKO/…)
- Business Domain
- Intel Domain
- NCES
- APCs
- TNOSCs
- Net Svc Ctr – Tng
- (NSC-T)

Network Service Center – Regional

(Virtual Combination of Global Capabilities with a regional expression)

- **Regional Hub Node (RHN)**
- **Area Processing Center (APC)**
- **AKO-F**
- **Theater Network Operations & Security Center (TNOSC)**
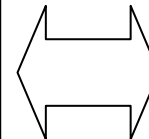
Operational Army

Capabilities:
- **WIN-T Increments (JNN-N)**
- **JTRS**
- **SATCOM**
- **NetOps**
- **Aerial Layer**
- **Transport for Trojan SPIRIT, CSS VSAT, SSET VSAT, BFT, PAONet, MedNet, etc.**
- **APCs**
- **RHNs**
- **NSC-Rs**

✫ **You are generating innovative ideas**

✫ **You have shown great flexibility in responding to our needs**

✫ **You have consistently worked to support our Warfighters**

✮**Develop solutions to support Army's evolving and flexible architecture**

✮**Use open standards vs. proprietary systems**

✮**Maintain delivery of technical, cost, and schedule**

Conclusions

✯ **SATCOM Requirements**

…*growing & will continue to grow*

✯ **Satellite Transport**

…**moving to EoIP**

✯ **Army Transformation**

…**tactical battle command enablers**

…**enterprise support generating & operational forces**

✯ **Military-Industry Team**

…**Kudos**

…**Challenges**

QUESTIONS & THOUGHTS

MG Jeff Sorenson

AMERICA'S ARMY: THE STRENGTH OF THE NATION
ARMY STRONG